

## ABSTRACT

A method and apparatus for manipulating a computer generated model and visualizing a change in projection plane before entering a projection creation command. After selection of a projection plane on the 3-D model, a generative drafting document can be created wherein the projection plane becomes the plane of the screen. The system can display a visualization of the projection of the model in plane with the screen, without generating a fully computed projection. Display of the visualization can provide increased efficiency in processing time as compared to a fully computed projection. The system can also display a graphical manipulator including a circular central region with a button in the middle, wherein clicking on the button can be used as a command to the system requesting creation of the projection. The graphical manipulator software tool can also include quadrants, wherein each quadrant is associated with a direction in relation to an orthogonal axis. The four quadrants can be defined as left, right, up and down: Clicking on a quadrant can cause the projection plane to rotate by 90 degrees, or other predetermined amount, around two orthogonal axes of the model in the projection plane. The direction of rotation will correlate with the quadrant selected. In addition, the manipulator tool can include a pin tracking the circumference of a circle displayed on a computer screen. Selection of the pin and rotation can cause the projection plane of a computer generated model to rotate about an axis which is perpendicular to the projection screen.